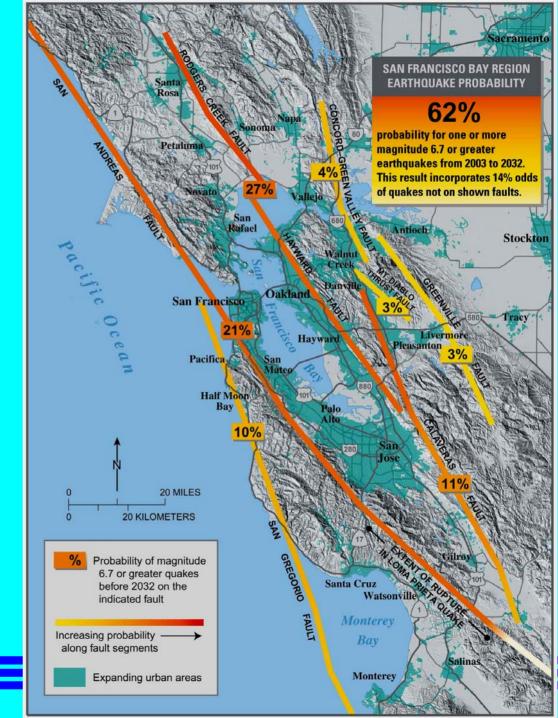
Preliminary Earthquake Vulnerability Study for ABAG PLAN Members

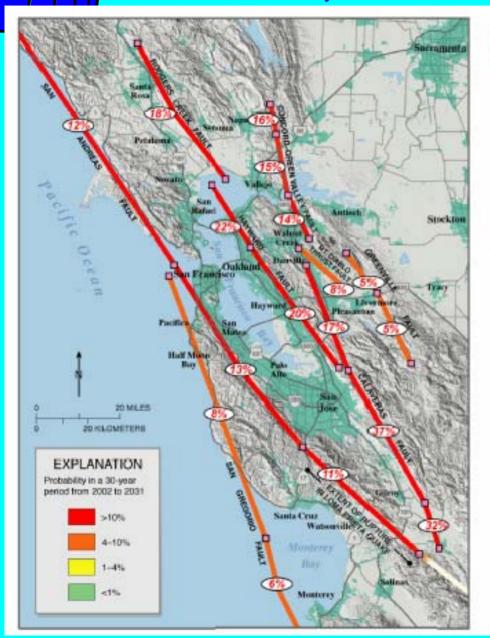
JEANNE PERKINS ABAG Earthquake Program Manager

What Is the Exposure of the ABAG PLAN Member Facilities to Violent Shaking?

"New" Probability = NEXT 30 Years for the Bay Area = 62% for M≥6.7



But Probability for Characteristic Quakes Is Larger





The "Larger" Characteristic Quake Probabilities Were Used.

ABAG revised its shaking hazard maps, a process completed in January 2003, and increased the number of earthquakes evaluated from 18 to 29.

FINDINGS

- 1. 97% of the 1,100 PLAN member facilities have a moderate likelihood of experiencing STRONG shaking (MMI VIII or greater) in the next 30 years (a level typically used as a trigger for requiring a structural screening analysis.)
- 2. 53% of PLAN member facilities have a moderate likelihood of experiencing even stronger VIOLENT shaking (MMI IX or greater).

How Likely IS Damage to Nonstructural Parts of Buildings or to Contents?

"Nonstructural"

Ceilings, AV, HVAC, furniture, etc.





FINDINGS from ABAG Survey

- 1. Only 53% of ABAG PLAN members have evaluated the nonstructural portions of any of their buildings for potential ways that these hazards could affect the operation of the facilities.
- 2. Only 22% had evaluated all of their facilities.

RECOMMENDATION for Facility Walk-Throughs by ALL ABAG PLAN Members

- 1. Would anyone get hurt if this item fell over?
- 2. Would a large property loss result?
- 3. Would interruptions and outages be a serious problem?



Predicting Damage

- 1 STRUCTURAL SYSTEM construction type (wood, tilt-up, etc.)
- 2 BUILDING HEIGHT number of stories
- 3 BUILDING CONFIGURATION L or U-shaped and offsets in stories
- 4 BUILDING AGE or the building code requirements in affect at the time of design and construction



FINDINGS from ABAG Survey

- 1. 65% of ABAG PLAN members have conducted a structural evaluation of any of their buildings.
- 2. Only 18% had evaluated all of their facilities.

IIII Facility Review Process

- 1. ABAG staff conducted a "Preliminary" evaluation from February-June 2003.
- 2. The evaluation used a "modified" version of FEMA 154.
- 3. The process was time consuming due
- Incomplete and inaccurate structural and age information.
 - Need to confirm that potential problem buildings are still owned by the city and have not been torn down or retrofitted.

Facility Inventory Data

Address Occupancy FEMA 154 structural type Configuration Irregularities in "plan" Vertical Configuration Irregularties Sprinklers? Year built Number stories Square footage Assessed value

Jan Facility "Hazard" Data

(Tied to address -> Geocoding to GIS)

FEMA flood plain Shaking exposure in 29 events Cumulative shaking exposure

Retrofit / Rehab / Remodeling notes

FUNDS for RETROFITS

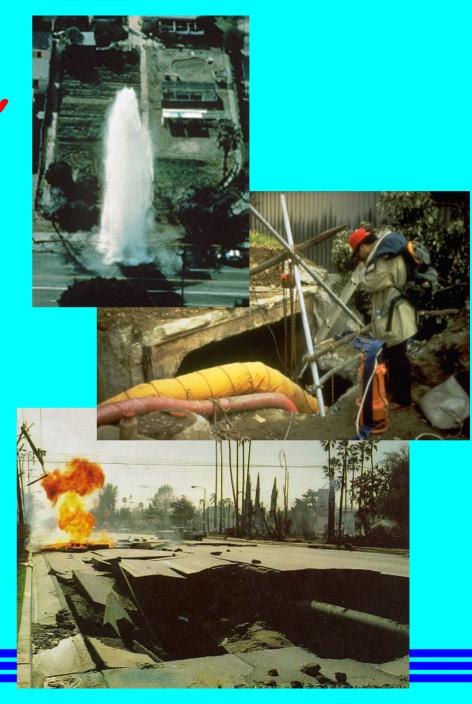
(from 2002 ABAG Survey)

- 1. General Fund 34 jurisdictions
- 2. Certificates of Participation 12
- 3. Federal Grant Funds 9
- 4. General Obligation Bonds 7
- 5. State Grant Funds 6
- 6. Agency, Community Development Agency, & Redevelopment Agency Bond Funds - 5
- 7. Other Capitol Improvement Funds Lease Revenue Bonds, Park District Hotel Taxes, Enterprise Funds, and Private Contributions!



"In

"Infrastructure" Roads, Water Pipelines, Sewer Pipelines, Water Treatment Plants, and Wastewater Treatment Plants





FINDINGS from ABAG Survey

- 1. Most ABAG PLAN members are responsible for sewer and water lines.
- 2. Most have mapped these lines.
- 3. All have identified criteria for pipeline replacements.
- 4. Five cities have installed speciallydesigned lines in areas of faulting, landsliding, or liquefaction.